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The genus Alcicornium of Gaudichaud

LUCIEN MARCUS UNDERWOOD

The adoption of 1753 as the initial date for botanical nomenclature in the Rochester rules of 1892, ratified by the Genoa botanical congress in the same year, reiterated by various botanical organizations down to the present year, and now almost universally accepted by botanists, settled a supplementary but more fundamental problem which had hitherto been an obstacle to the progress of a correct understanding of genera. The principle thus established is briefly stated as follows: *A genus is a group of closely related species and not a definition.* The converse view of this principle has led to untold misconceptions in regard to a proper understanding of what genera really are, particularly among the ferns. If a species has no near relations it will form a monotypic genus concerning whose nomenclatorial type there can be no question; nevertheless, in the practice of the past, generic names of this sort have often been passed along from the original monotype to species later added, until in their present acceptance they would not be recognized by their founders. Linnaeus' *Species Plantarum* contains no diagnoses of genera, and as a necessary corollary, a genus may be founded at any time by giving a generic name to a species or group of species. Such a genus is "*rite* published," to quote an expression from an author on whose restrictions this article is in part a protest. Botanical literature has frequent examples of such publications, of which I cite a single one which has recently been accepted without question:

In an "observatio" appended to the description of the genus *Bolbitis*, Schott (Gen. Fil. *pl. 14*) says: "Praeter *Bolbitin* alia duo genera: *Elaphoglossum* et *Rhipidopteris*, ab Acrostichis genuinis sunt segreganda. Prioris generis exempla sunt: E. simplex, conforme, apodum, viscosum, vestitum, etc. (Acrost. simplex, conforme etc. Auctorum); posterioris * * *." (1834.)

This is the proper starting point of the genus *Elaphoglossum*, and no one has seemed to take the gerundive construction in any other way than an intention on the part of the author to here establish a new genus. A few years earlier Gaudichaud, in the narrative of his report on the voyage of *l'Uranie* says (page 48): "On trouve de plus une fougère très-remarquable qui abonde sur les rameaux de tous les tamariniers: c'est l'*Acrostichum alcicorne*, ou du moins une espèce ou variété du genre (*Alcicornium*) qu'on ne manquera pas de faire de ces plantes dès qu'elles seront mieux examinées." We can hardly discern the distinction between this case and that of *Elaphoglossum*, and we must consider the genus *Alcicornium* as "*rite* published" by the association of a generic name with a type species; and Mr. Christensen, who includes among certain just criticisms * of my recognition of fern genera of the Old World a rejection of this genus, is surely inconsistent in taking up *Elaphoglossum* while denying validity to *Alcicornium*. It is true that in the latter case Gaudichaud withdrew his name in the same work (page 307), but there was an interval of nearly two years between the first publication and the second,† during which Desvaux published the genus *Platycerium* more formally, and Gaudichaud with the characteristic "après vous, monsieur" of French courtesy simply withdrew his genus in deference to Desvaux. It is a generally recognized principle of biological nomenclature that "a name is a name," and that a genus once published cannot be withdrawn from nomenclature even by its own author. The only reason for withdrawing a published name is the proof that it is either a synonym or a homonym. If Desvaux had not published *Platycerium* in 1827 no one would have hesitated to cite *Alcicornium* as dating from its first publication at page 48 of Freycinet's voyage in 1826. On the principle of priority of publication, therefore, we must accept the name *Alcicornium* as the proper designation for the unique genus of stag-horn ferns.‡ If

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[*] Christensen. On the American species of *Leptochilus* sect. Bolbitis. Bot. Tidssk. **26**: 283–300. 1904. Much of Mr. Christensen's criticism is based on a misconception of my point of view; our conceptions of the limitations of genera are wholly different. In the single case of *Belvisia* I had overlooked the synoptical publication of the genus in which the order of the species is inverted from that in its more formal publication in the text. This transfers *Belvisia* from *Acrostichum spicatum* to *A. septentrionale* (*Asplenium septentrionale* Hoffm.).

[†] The date of the publication of pages 1–48 of Freycinet's voyage is 1826. The date of the publication of pages 265–312, including the withdrawal of *Alcicornium*, is 1828. *Cf.* Jour. Bot. 39: 206. 1901.

[‡] In raising this group to a tribal alliance (Bull. Torrey Club 30: 672) we overlooked the fact that this had already been done by the acute John Smith in his *Historia Filicum*, 122. 1875. We would now exclude from the tribe the peculiar genus *Cheiropleuria* placed in this alliance by Diels (Die nat. Pflanzenfam. 1^4: 336) as more properly representing, in its vascular system particularly, a high degree of differentiation in the tribe *Acrosticheae*.

we were to decide nomenclature on a principle of purely temporizing expediency and in entire disregard of principles, as advocated at the recent Vienna congress, we might argue the continuance of the name *Platycerium*, but once adopting the principle of priority of publication as a fundamental law and the date of 1753 as initial, which annuls the old conceptual idea of a genus, we are forced to adopt *Alcicornium*.

The stag-horn ferns, which have attracted attention since the time of Plukenet, two centuries ago, by their bizarre appearance and habit of growth, are, with one exception, confined to the tropical and sub-temperate regions of the Old World. Except for Hooker's treatment in *Species Filicum* they have never been monographed, and as the recent literature relating to individual species is greatly scattered we present this preliminary revision with references to the numerous illustrations that have been published, particularly since these ferns are attracting considerable attention in cultivation at the present time. In this connection we shall attempt to elucidate the nomenclatorial tangle not only of the generic name but of the specific name of one of the commonest species, since two of the species of the genus have been more or less mixed during their entire history.*

In 1705 Plukenet (Amal. Bot. *pl. 429. f. 2*) figured a sterile African plant with the designation *Neuroplatyceros aethiopicus, nervosis foliis, cornu cervinum referentibus* (page 151).

Müller, in 1785, described *Osmunda coronaria* (= *Alcicornium coronarium*) from Siam.

Willemet was the first to describe *Acrostichum alcicorne*, in 1796 (Usteri, Ann. **6**^{18}: 61), as follows:

> *Acrostichum* (*alcicorne*) frondiformibus lobatis: lobis dichotomis. N. Habitat in Madagascaria.
>
> Stadtmannus plantam siccam dabat.
>
> Fructificatio non adest in meo specimine. In altero loborum aversam partem occupabat.

In 1799 Cavanilles (Anal. Hist. Nat. **1**: 105) described *Acrostichum bifurcatum* from Port Jackson, New Holland.

In Schrader's Jour. für die Botanik (**1800**^{2}: 11. 1801) Swartz described an *Acrosticum alcicorne* with no reference whatever to

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* *Cf.* Carruthers. The Nomenclature of *Platycerium*. Jour. Bot. **38**: 123–125. 1900. Mr. Carruthers gives a number of interesting points on the early history of the species, but does not begin to fathom the nomenclatorial difficulties.

Willemet but cited Plukenet's figure; he apparently mixed two species in his account in his expressions "*laciniis* * * * *versus apices fructiferis*" and "*foliis primordialibus reniformibus lobatis venosis.*"

In 1804 Schkuhr (Crypt. Gewächs. 1. *pl. 2*) reproduced Plukenet's figure in color, adding Willemet's citation with a ?, using the name *Acrostichum alcicorne* without adding to the knowledge of the subject.

In 1806 Palisot de Beauvois (Fl. d'Oware et de Benin. 2. *pl. 2*) described and figured *Acrostichum Stemaria* in color, collected by Commerson in Madagascar.

In 1806 Swartz (Syn. Fil. 12 and 196) jumbled most that had been previously published under the name *Acrostichum alcicorne*, citing Plukenet, Cavanilles, and Schkuhr. Among his "*Inquirendae*" (page 17) he placed the citation of *Acrostichum alcicorne* Willemet.

In 1810 Willdenow, with a modified description of his own, continued the same jumble of references (Sp. Pl. **5**: 111).

In 1827 Desvaux (Mém. Linn. Soc. **6**: 213) established the genus *Platycerium* with the following species:

P. ALCICORNE = *Acrostichum alcicorne* Sw. in part.
P. STEMMARIA = *Acrostichum Stemaria* Beauv. (*A. bifurcatum* Cav.?).
P. ANGUSTATUM = *A. alcicorne* R. Br. Prod. Fl. Nov. Holl. 145, not Sw.
P. CORONARIUM = *Osmunda coronaria* Müll. (*Acrostichum biforme* Sw.).

Presl 1836 (Tent. Pterid. 239–240) took up *Platycerium* with three species:

P. alcicorne Gaud. (*P. angustatum* Desv.).
P. biforme (*P. coronarium* Desv., *Acrostichum biforme* Sw.).
P. Stemaria (*Acrostichum Stemaria* Beauv.).

In 1841 John Smith added a fourth species (Jour. Bot. **3**: 402) from the Philippines as *Platycerium grande* ("*Acrostichum grande* A. Cunn."), which remained a *nomen nudum* until it was described in 1845 as *Nevroplatyceros grandis* Fée, Mém. Foug. **2**: 103, and in 1852 * as *Platycerium grande* Presl, Epim. Bot. 154.

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* [According to J. Müller (Muell.-Arg.) in De Candolle's *Prodromus* (15^2: 258. 1862), Presl's *Epimeliae Botanicae*, although bearing the title-page date 1849, was not published until 1852; and as negative evidence, in favor of Müller's assertion, may

In 1845 Fée (Mém. Foug. **2**: 102–104) took up the genus *Nevroplatyceros* from Plukenet and recognized four species, viz.: *N. alcicornis*, *N. aethiopicus* Pluk. (*Acrostichum Stemaria* Beauv.), *N. grandis* and *N. biformis*. The first three were placed in the § *Platyceria* and the last named in the § *Scutigera*. A fine plate (*pl. 64*) was given of the second species.

In 1864 Hooker (Sp. Fil. **5**: 282–285) again recognized *Platycerium* with species as follows:

1. *P. alcicorne* Desv.
2. *P. aethiopicum* Hook.
3. *P. grande* J. Sm.
4. *P. Wallichii* Hook.
5. *P. biforme* Bl.

In this somewhat tedious recital we can see from our present viewpoint that during the first half of the last century there were two somewhat common species, the one from Australia with narrow leaves which are usually twice forked and bear the sporangial surfaces on the distal lobes, the other with a broader leaf and usually shorter lobes, bearing the sporangial surface at the extremity of the broadened surface between the lobes. The first, which is the *Platycerium alcicorne* of recent authors, was first described by Cavanilles as *Acrostichum bifurcatum* (type locality, Port Jackson, Australia) and again by Desvaux as *Platycerium angustatum*. Presl recognized this as a distinct species but was unfortunate in the selection of his name, although he specifies that it was the *P. alcicorne* of Gaudichaud and not of previous authors. The second species is from Madagascar and other parts of Africa, where it is the more common species, and was probably the original *Acrostichum alcicorne* Willem. (type locality, Madagascar), and was certainly the *Acrostichum Stemaria* of Beauvois. It is more than likely that a young sterile and possibly abnormal leaf of this species served for the figure of Plukenet which was copied by Schkuhr a hundred years later.

It is, therefore, evident that the name *alcicorne*, which Swartz and his contemporaries used to include both plants, and which

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be noted the fact that Presl's work was reviewed by Schlechtendahl as a novelty in the Botanische Zeitung, in September 1852 (**10**: 656, 657). Internal evidence that the final touches were not given to Presl's manuscript until after the close of the year printed on his title-page, is to be found in two direct citations, on page 261, of species published by Kunze in 1850 (Bot. Zeit. **8**: 57, 58. 25 Ja 1850). Finally, an inspection of the original paper cover of the *Epimeliae* shows that it is dated (on last page) "Pragae, 1851."——J. H. B., ED.]

later authors with more or less precision, commencing with Gaudichaud and Presl, have used for the Australian species, does not belong with it, and that only with doubt can *Acrostichum alcicorne* Willem., in the absence of its type, be referred to any species known to-day. The overwhelming probability, however, points to it as being the same as *Acrostichum Stemaria* Beauvois.

With these modifications of existing nomenclature we proceed to an enumeration of the species, of which there appear to be thirteen known at the present time; of these eight species are in cultivation at the Royal Botanical Garden at Kew, and seven species at the New York Botanical Garden. Three species we have seen only in herbarium collections, and there is only one (*A. sumbawense*) which we have not seen in some form.

Synopsis of the species of Alcicornium*

- Sporophyls broad, with no narrow strap-like divisions.
  - Sporophyls rounded at the apex, with entire or repand margins; sporangial area oval; basal leaves erect. 2. *A. angolense.*
  - Sporophyls more or less lobed at the apex.
    - Apex with two rounded lobes; margins otherwise entire; sporangial areas reniform. 5. *A. Ellisii.*
    - Apex with irregular margins showing manifest tendency to fork; sporangial areas irregular in shape following the outline of the leaf; basal leaves thick, with deep irregular pits when dry. 8. *A. madagascariense.*
- Sporophyls with narrow strap-like lobes, in shape resembling a stag's horn.
  - Sporangial areas on a stalked scutiform disc. 4. *A. coronarium.*
  - Sporangial areas on the surface of the sporophyl.
    - Sporangial areas at or below the forks and not on the strap-like lobes of the leaf.

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* We add here the original description of the only species not seen:

"*P. sumbawense* n. sp. Christ.

Inter P. alcicorne Desv. et P. Wallichii Hook. habitu intermedium, sed omnium angustissimum. Frondibus fertilibus pallidis binis, ternis sive quinis, ligulatis loriformibus, ad basin sensim attenuatis, 65 cm longis, parte latissima 3 cm latis, sulcato-nervosis, adpresse floccosis, media circiter longitudine dichotomo-divisis, atque iterum bis dichotomis, segmentis ultimis furcatis (laciniis ultimis usque ad 20 pro fronde) lanceolato-triangularibus rostratis, involutis, 7 ad 6 cm longis obtusiusculis, omnibus soriferis, soris faciem inferiorem usque ad basin laciniarum omnino tegentibus, immature pube densa albida obtectis, mature rufis partim ista pube tectis. Frondibus sterilibus, politis nitidis scariosis fragilibus spongiosis ochraceo-fulvis reniformi-rotundatis 15 ad 30 cm diametro, margine laciniatis laciniis profundis furcatis. Nervis conspicuis areolas elongatas angulosas formantibus, nervulis aliquot lateralibus liberis inclusis.

Differt a P. alcicorni lamina magis decomposita, angusta, segmentis multo minoribus, rostratis, numerosis. Differt a P. Wallichii statura multo minore, omnibus partibus angustioribus, et soris terminalibus nec in sinu ramorum positis." Warburg, Monsunia 1: 64. 1900.

  - Sporangial area on an enlarged basal portion of the sporophyl. 6. *A. grande.*
  - Sporangial area at the sinus of the second fork of the sporophyl.
    - Basal leaves laciniate into strap-shaped lobes; sporangial areas oval, on a modified portion of the sporophyl. 12. *A. Wallichii.*
    - Basal leaves undulate or entire at the margins; sporangial area triangular, on the unmodified surface of the sporophyl. 9. *A. Stemaria.*
- Sporangial areas on the narrow strap-like lobes of the sporophyl, only exceptionally extending below the sinus.
  - Sporophyls rigid, erect in growth, gradually widening upwards and then forming several lobes or divisions.
    - Bright-green both sides; sporangia-bearing divisions broad (5–8 cm.). 7. *A. Hillii.*
    - White both sides but becoming greenish above from the deciduous stellate scales; sporangia-bearing divisions narrow (2.5 cm. or less wide). 11. *A. Veitchii.*
  - Sporophyls lax, pendent in growth.
    - Sporangial areas on or near the apices of the lobes. (Species of the Old World).
      - Basal leaves erect and foliaceous; sporophyls many times forked. 13. *A. Willinckii.*
      - Basal leaves remaining flat and disc-like; leaves 2–3 forked. 3. *A. bifurcatum.*
    - Sporangial areas medial on the sporophyls. (Andine species.) 1. *A. andinum.*

1. **Alcicornium andinum** (Baker)

Platycerium andinum Baker, Ann. Bot. **5**: 496. 1891; New Ferns 113. 1892. (Type from Peru, *Spruce 4729.*)

RANGE: Mountains of Peru and Bolivia, first collected by Spruce. The only American species known; strangely confused by Hooker with *A. bifurcatum.*

2. **Alcicornium angolense** (Welw.)

Platycerium angolense Welw.; Hooker & Baker, Syn. Fil. 425. 1868. (Type from Angola, *Welwitsch.*)

Platycerium Elephantotis Schweinf. Bot. Zeitung **29**: 361. *fig.* 1878. (Type from central Africa.)

RANGE: Tropical Africa.

ICON.: Gard. Chron. III. **23**: 155. *f. 62.* 1898; Rev. Hort. Belge **28**: 85. *pl.* 1902; Schweinfurth *loc. cit.*

Schweinfurth's wood cut illustration is very misleading and does not at all compare with his specimens at Kew, which differ in no particular from *A. angolense.*

3. **Alcicornium bifurcatum** (Cav.)

Acrostichum bifurcatum Cav. Anal. Hist. Nat. **1**: 105. 1799. (Type from Port Jackson, Australia.)

Platycerium angustatum Desv. Mem. Linn. Soc. Paris **6**: 213. 1827. (Type from Australia.)

Acrostichum alcicorne R. Br. and *in parte minore* of Swartz and Willdenow. Not *A. alcicorne* Willem.

Platycerium alcicorne of Gaudichaud and Presl.

RANGE: Australia, Lord Howe Island, New Caledonia; possibly extending to Africa, but exact data are wanting.

ICON.: Turpin, Dict. Hist. Nat. (Atlas); Bot. Register **3**: *pl. 262, 263.*

4. **Alcicornium coronarium** (Müller)

Osmunda coronaria Müller, Naturforscher **21**: 107. *pl. 3.* 1785. (Type from Siam.)

Acrostichum biforme Sw. Jour. für die Bot. (Schrader) **1800**^{2}: 11. 1801.

Platycerium coronarium Desv. Mém. Linn. Soc. Paris **6**: 213. 1827.

Platycerium biforme Blume, Fl. Jav. Fil. 44. *pl. 18.* 1829.

Nevroplatyceros biformis Fée, Mém. Foug. **2**: 104. 1844–5.

RANGE: East Indies from Siam to Penang, Singapore, Sumatra, Borneo and the Philippines.

ICON.: Müller *loc. cit.*; Blume *loc. cit.*; Beddome, Ferns of Brit. India *pl. 224.*

5. **Alcicornium Ellisii** (Baker)

Platycerium Ellisii Baker, Jour. Linn. Soc. **15**: 421. 1876. (Type from Madagascar, *Ellis.*)

RANGE: Known only from central Madagascar.

ICON.: Baker, Hook. Ic. Pl. **17**: *pl. 1695.*

6. **Alcicornium grande** (J. Sm.)

Platycerium grande J. Sm. Jour. Bot. (Hooker) **3**: 402.

1841 (*nomen nudum*); Presl, Epim. Bot. 154. 1852.* (Type from the Philippines.)

Nevroplatyceros grandis Fée, Mém. Foug. **2**: 103. 1845.

RANGE: East Indies from Singapore to North Borneo and the Philippines; also Moreton Bay, Australia.

ICON.: Hooker, Gen. Fil. *pl. 80 B* (as *Pl. biforme*); Hooker, Fil. Exot. *pl. 86*; Beddome, Ferns of Brit. India *pl. 326*; Gard. Chron. III. **28**: 433. *f. 134.*

7. **Alcicornium Hillii** (Moore)

Platycerium Hillii Moore, Gard. Chron. II. **10**: 429. *f. 74–75.* 1878. (Type from Queensland, *Hill.*)

RANGE: Known only from Queensland, Australia.

ICON.: Moore *loc. cit.*

8. **Alcicornium madagascariense** (Baker)

Platycerium madagascariense Baker, Jour. Linn. Soc. **15**: 421. 1876. (Type from Madagascar, *Pool.*)

RANGE: Known only from Madagascar, the type locality.

9. **Alcicornium Stemaria** (Beauv.)

Neuroplatyceros aethiopicus, nervosis foliis, cornu cervinum referentibus. Pluk. Amal. Bot. 151. *pl. 429. f. 2.* 1705.

? *Acrostichum alcicorne* Willemet, Usteri Ann. 6^{18}: 61. 1796. (Type from Madagascar, *Stadtmann.*)

Acrostichum Stemaria Palisot de Beauvois, Fl. d'Oware et de Benin 2. *pl. 2.* 1804. (Type from Madagascar, *Commerson.*)

Platycerium Stemmaria Desv. Mém. Linn. Soc. Paris **6**: 213. 1827.

Nevroplatyceros aethiopicus Fée, Mém. Foug. **2**: 103. *pl. 64.* 1845.

Platycerium aethiopicum Hook. Garden Ferns *pl. 9.* 1861.

Acrostichum alcicorne of Swartz and Willdenow *pro parte majore.*

RANGE: Tropical Africa from Madagascar to Fernando Po, and north to Sierra Leone.

ICON.: Plukenet *loc. cit.*; Beauvois *loc. cit.*; Fée *loc. cit.*; Hooker, Garden Ferns *pl. 9*; J. Sm. Hist. Fil. *pl. 5.*

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* See footnote on page 590.

10. **Alcicornium sumbawense** (Christ)

Platycerium sumbawense Christ, in Warburg, Monsunia **1**: 64. 1900. (Type from Sumbawa, *Warburg 17266.*)

RANGE: Known only from its type.

This species is possibly not distinct from *A. Willinckii,* so far as one can judge by the description (*q. v.*, page 592, note).

11. **Alcicornium Veitchii** sp. nov.

Platycerium Veitchii Gard. Chron. III. **19**: 652. 1896; Jour. Roy. Hort. Soc. **20**: lxxxiii. 1896 (*nomen nudum*).

Basal leaves appressed, soon becoming brownish; spore-bearing leaves cespitose (up to 11 in the cluster), 60 cm. or more long, narrow at the base, tapering gradually to a width of 5–10 cm. or more, then dividing into 6–8 narrow pseudopalmate lobes, 10–20 cm. long by 2–2.5 cm. wide, all becoming more or less sporangiferous in irregular areas; upper surface grayish-scurfy from the quantities of stellate hairs which soon become loosened, finally smoothish in irregular areas from these hairs becoming deciduous; under surface clear white from the abundant, crowded, silvery, star-like matted hairs.

Imported from Adelaide, Australia with other plants by Messrs. Veitch, the horticulturists for whom the species is named, and by them publicly exhibited in 1896. Described from living plants in hort. Kew, September, 1905.

A very distinct species of rigid habit quite in contrast with the other Australian members of the genus.

12. **Alcicornium Wallichii** (Hook.)

Platycerium Wallichii Hook. Gard. Chron. **1858**: 764. 1858.

RANGE: India (type from the banks of the Irawaddy, *Wallich*).

ICON.: Hooker, Fil. Exot. *pl. 97;* Beddome, Ferns of British India *pl. 108.*

13. **Alcicornium Willinckii** (Moore)

Platycerium Willinckii Moore, Gard. Chron. II. **3**: 302. *f. 56.* 1875.

RANGE: Java (type from Java, whence it was introduced to cultivation by Willinck about 1873).

ICON.: Moore *loc. cit.;* Garden **10**: 383. *f.* 1876.

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